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## The Performance of Eyewitnesses with Intellectual Disabilities on Photographic Identification Lineups

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### ABSTRACT

Despite the large number of people with intellectual disabilities (ID) and the fact they are more likely to be victims and witnesses of crime, only two published studies have investigated their performance on identification lineup parades. In the present study we examined the identification performance of adults with and without ID on both a perpetrator present and a perpetrator absent photo lineup. In addition we investigated factors that could explain any potential difficulties with identification performance, such as face recognition performance (as measured by a standardised test), eyewitness confidence, understanding of the purpose of a lineup, and memory for non-biased lineup instructions. In comparison to typical adults, participants with ID demonstrated poorer performance across both perpetrator present and absent photo lineups, yet were more confident in the accuracy of their responses. In addition they had poorer face recognition performance, were less likely to understand the purpose of the lineup, and were less likely to remember the non-biased lineup instructions. This pattern of difficulties is discussed in relation to the development of future research and interventions.

## THE PERFORMANCE OF EYEWITNESSES WITH INTELLECTUAL DISABILITIES ON PHOTOGRAPHIC IDENTIFICATION LINEUPS

Eyewitness testimony is critical in securing a conviction in court, especially facial identification evidence, which may be key in linking a defendant to a crime (Wilcock, Bull, & Milne, 2008). Eyewitness identification evidence is highly persuasive for juries and, therefore, of central importance in many trials (Cutler, Penrod, & Stuve, 1988). Unfortunately, witnesses are not always accurate when they make a decision regarding an identification lineup and, furthermore, mistaken identification evidence is the leading cause of wrongful convictions in the USA (Innocence Project, 2009). The majority of eyewitness research that has focused on explaining and reducing false identifications has involved young adult witnesses. This is despite the fact that at least one in 100 adults have intellectual disabilities (Harris, 2006), and, because of their disabilities, these individuals are at increased risk of being victims and witnesses of crimes (Lin, Yen, Kuo, Wu, & Lin, 2009; Smith & Tilney, 2007; Wilson & Brewer, 1992); for example, hate crime, abuse (sexual, physical, emotional, and financial), and manipulation by terrorist organisations.

Thus far only two published studies have investigated the performance of witnesses with intellectual disabilities (ID) on identification lineups, and both identified some weaknesses in performance. Ericson and Issacs (2003) found that there were no differences between witnesses with and without ID in their ability to identify the perpetrator from a photo lineup. However, on a lineup containing an innocent suspect those with ID were more likely to make a false identification. Conversely, Ternes and Yuille (2008) found that adults with ID were poorer at identifying the perpetrator than adults without ID, but these authors found no differences between groups in performance on a photo lineup containing an innocent

suspect. The current study will revisit these issues in order to provide clarity concerning the strengths and weaknesses of adults with ID on photo lineups. In addition, because neither of these previous studies formally tested IQ levels or investigated possible explanations for why those with ID may show difficulties with identification lineups, the present study will address both of these issues.

There are a number of possible explanations as to why people with ID may demonstrate difficulties with identification lineups. One explanation could be that those with ID show a cognitive deficit in face recognition. Dobson and Rust (1994) examined memory for objects and faces in secondary school children with and without ID. Those with ID were poorer at remembering the objects but not poorer at remembering faces compared to those without ID. However, caution should be exercised when drawing any conclusions because, on closer examination of the data, all participants were performing very well on the face memory test. In a more recent investigation examining memory conjunction errors for faces (incorrectly recognising a combination of two faces, previously seen separately, as a seen before face) made by adults with and without ID, after adjusting for different guessing levels, those with ID made more conjunction errors, feature errors (incorrectly recognising a face which has one old and one new component) and had lower correct recognitions than those without ID (Danielsson et al., 2006). Therefore, it is not currently clear whether adults with ID have difficulties in face recognition tasks. In order to distinguish between face recognition abilities and identification performance, in the current research we have included a standardised test of face recognition in addition to the identification lineup task.

A further explanation as to why people with ID may demonstrate difficulties with identification lineups could relate to their understanding of the purpose of a

lineup. However, there is currently no available research looking explicitly at whether individuals with ID understand the purpose of an identification lineup, and whether they fully understand the instructions usually given for carrying out the task. Previous studies have shown that adults without ID can have misconceptions about the nature of an identification lineup (Wilcock & Crossley, 2011), and a large body of experimental research has shown that individuals with ID have difficulty choosing effective remembering strategies when they do not have a full and clear understanding of the task (Bray, Fletcher & Turner, 1997). We will, therefore, assess all participants' understanding of the nature of the task. It is expected that adults with ID will have poorer understanding than those without ID.

Instructions given to witnesses prior to them viewing an identification lineup as stipulated by Code D of the Police and Criminal Evidence Act (which applies in England, Wales, and Northern Ireland) inform them that the perpetrator may or may not be included in the lineup and that they should not make an identification if they do not recognise anyone. These instructions should increase people's understanding of the nature of an identification lineup. However, evidence shows that people do not always remember these instructions (Rose, Bull, & Vrij, 2003; 2005). Furthermore, Malpass and Devine (1981) reported that if the so called 'non-biased lineup instructions', informing witness that the perpetrator may or may not be present in the lineup, were not given, 78% of witnesses made false identifications from a perpetrator absent lineup, whereas with the warning, the rate of false identifications fell to 33%. The present research includes this non-biased lineup instruction, but we will also assess the extent to which participants can remember the instruction that the perpetrator may or may not be present in the lineup. We expect that people with ID will be less likely to remember such an instruction correctly compared to adults

without ID. In addition, those who do not remember the non-biased lineup instruction are predicted to be less accurate on the identification task, particularly on the perpetrator absent lineup.

Finally, there has been great debate in the literature as to the relationship between self reports of confidence in the accuracy of witnesses' lineup decisions and their lineup accuracy. Initial investigations produced mixed findings, with some showing a weak positive correlation and others showing no correlation (Wilcock et al. 2008). However, research has found that confidence and accuracy are likely to be associated, with witnesses who give high ratings of confidence more likely to be accurate on the lineup (Brewer, 2006). This of course, depends on a witness being able to monitor the accuracy of their memory. People with ID may not be able to do this as successfully as people without ID. For example, metamemory (knowledge about memory) and use of appropriate memory strategies in children and adolescents with ID is often reported as fragile (e.g. Bray et al., 1997). If such metacognitive skills are weak, we may expect that participants with ID could be inappropriately confident in the accuracy of their lineup decisions. Furthermore, whilst we might expect an association between confidence and accuracy for participants without ID, there may be no such association for those with ID.

To summarise, on the basis of previous research we expect that adults with ID will demonstrate poorer performance across both perpetrator present and perpetrator absent photo lineups. Related to this, adults with ID are also expected to show poorer face recognition performance on the Benton Face Recognition test. We also expect those with ID to have poorer understanding of the purpose of a lineup task, be less likely to remember that the perpetrator may or may not be present, and be less likely to demonstrate an association between confidence and lineup accuracy.



## METHOD

### Participants

Participants were 51 adults ranging in age between 18 and 30 years ( $M = 25.45$   $SD = 3.43$ , 25 males and 26 females). Of those participants 25 had ID ( $M = 25.20$   $SD = 3.38$ , 14 males and 11 females). These participants were recruited from supported living groups and an arts centre for adults with ID. The remaining 26 participants without ID were mostly university students ( $M = 25.69$   $SD = 3.53$ , 11 males and 15 females). There were no significant differences in age between the two groups. No participant had worse than 20.30 vision as measured by the Snellen eye chart and none reported serious health problems. All participants completed the Standardised Abbreviated Stanford BINET IQ Test. Participants with ID obtained IQ scores between 47 and 67 ( $M = 53.72$   $SD = 6.54$ ). Participants without ID obtained IQ scores between 85 and 139 ( $M = 111.88$   $SD = 13.46$ ). There was a significant difference in IQ between the two participant groups ( $t(49) = 19.51$ ,  $p < .001$ ).

### Event

The to-be-remembered event consisted of a 110-second colour video clip (no sound) of a young man and an older man breaking into a house. The older man went upstairs in the house while the younger man remained downstairs. Full exposure of each man's face was for six seconds in the case of the young man and seven seconds for the older man. The order in which the young and old man were shown was alternated across participants. (It was possible to edit the video so for one tape the young man in the downstairs room was seen first and the older man in the upstairs room was seen second and vice versa.)

### Lineups

There were four photo lineups altogether, a perpetrator present (PP) lineup and a perpetrator absent (PA) lineup for each of the young and the old perpetrator. Each participant was shown a simultaneous perpetrator present lineup and a simultaneous perpetrator absent lineup (all pictures were presented together, as opposed to in sequence). Half of the participants saw a perpetrator present lineup for the young perpetrator, followed by a perpetrator absent lineup for the old perpetrator, the other half saw a perpetrator absent lineup for the young perpetrator and a perpetrator present lineup for the old perpetrator. The lineups were presented in the same order as the perpetrators had been viewed on the video recording.

The lineups used in the present experiment have been used in previous published research (Wilcock et al. 2005; 2007) and were developed using a match to description of culprit using a procedure based on that used by Lindsay, Martin, and Webber (1994). The perpetrator present lineups contained the perpetrator and five foils. The perpetrator absent lineups contained a perpetrator replacement and five foils. The perpetrator and perpetrator replacements were placed in all positions of the lineups. The lineup photos comprised six 20cm by 25cm coloured head shots of the face arranged in a three by two photospread array. Participants were also provided with the option not to choose a face by ticking the option “none of them”.

### Procedure

Prior to testing all participants were briefed about what the study would entail and all gave written informed consent. All participants were tested individually and upon arrival were directed to sit in view of the television screen, and were asked if they could see the screen clearly. They were then instructed to watch the video clip of the break in. After watching the video clip participants were asked for personal details such as age. At this point all the participants were asked to complete the

Stanford Binet IQ test, the Benton Face Recognition Test, and have their eyes tested. These tasks comprised the delay period of 30 minutes, after which participants viewed two simultaneous photographic lineups, one for the young perpetrator and one for the old perpetrator. Each participant saw one PP and one PA lineup and the order of showing PP and PA lineups was counterbalanced across participants. Prior to each lineup, participants were warned that the perpetrator may or may not be present in the lineup. The Experimenter stood behind the participant when they were looking at the lineups to avoid inadvertently giving any cues which may influence the witness. Once the participant had made a decision it was recorded by the experimenter on the response sheet.

After each lineup, participants were asked how confident they were that they had made a correct decision using a 1 – 10 Likert scale (with 1 being not at all confident and 10 being extremely confident). After both lineups were completed, participants were asked about their memory for the non-biased line-up instructions informing them that the perpetrator may or may not be present. Specifically they were asked: “Please could you tell me as much as you can remember about the lineup instructions I gave you just before you viewed the lineup.” In addition participants were asked: “What do you believe is the purpose of a lineup?” Responses to this question were coded as full understanding, partial understanding i.e. some aspect of the response was correct or was incomplete, or no understanding. At the end all participants were thanked and debriefed.

## RESULTS

Because responses given on PP and PA lineups differ somewhat (PP: hits/correct identifications of the perpetrator, false identifications, and incorrect

rejections, and PA: correct rejections and false identifications) analysis has been conducted separately for responses regarding (i) PP lineups and (ii) PA lineups.

### Perpetrator Present Lineups

Participants with ID were significantly less likely to be correct on the PP lineups compared to those without ID,  $\chi^2(2, N = 51) = 6.75, p = .034$ ; Cramer's  $V = .36, p = .034$ . Table 1 shows data for PP (and PA) lineup performance. As can be seen, participants with ID made fewer 'hits' of the perpetrator and more 'false identifications' than those without ID.

### Perpetrator Absent Lineups

Participants with ID were significantly less likely to be correct on the PA lineups compared to those without ID  $\chi^2(1, N = 51) = 3.69, p = .05$  1 tailed; Cramer's  $V = .27, p = .05$ . As can be seen from Table 1 participants with ID made fewer correct rejections and more false identifications than those without ID.

### Benton Face Recognition Test

Participants without ID had higher scores on the Benton Face Recognition Test (BFRT). ( $M = 48.92, SD = 1.62$ ) than participants with ID ( $M = 36.32, SD = 4.75$ ). This difference was statistically significant  $t(49) = 12.78, p = .001$ . Across both lineup types there was a significant positive correlation between BFRT score and lineup accuracy  $r_{pb} = .26, N = 102, p = .001$ .

### Post Lineup Measures

Collapsed across both lineup types, there was a significant difference in self reported confidence  $t(100) = 2.36, p = .02$ . Those with ID had a higher mean confidence in the accuracy of their lineup response ( $M = 7.82, SD = 2.99$ ) than those without ID ( $M = 6.71, SD = 2.39$ ). Across both lineup types, for participants without ID there was a significant correlation between confidence and lineup accuracy,  $r_{pb} =$

.35,  $N = 52$ ,  $p = .012$ . This indicated that participants who were more confident in the accuracy of their lineup decision were also more likely to be accurate. A significant correlation was not present, however, for participants with ID,  $r_{pb} = .10$ ,  $N = 50$ ,  $p = .50$ .

There was a significant effect of ID group on understanding the purpose of the lineup,  $\chi^2(1, N = 51) = 34.938$ ,  $p = .001$ , Cramer's  $V = .82$ ,  $p = .001$ . No participants with ID had a full understanding of the task, four had a partial understanding and 21 had no understanding. Nine participants without ID had a full understanding, 16 had a partial understanding and one had no understanding.

There was also a significant effect of ID group on recall of instructions (informing witnesses prior to the lineups that the perpetrator may or may not be present),  $\chi^2(1, N = 51) = 18.91$ ,  $p = .001$ , Cramer's  $V = .61$ ,  $p = .001$ . Six participants with ID correctly reported instructions and 19 did not, opposed to 22 without ID correctly reporting instructions and four who did not. Across both lineup types, there was a significant association between memory for these instructions and lineup accuracy  $\chi^2(1, N = 102) = 4.42$ ,  $p = .036$ ; Cramer's  $V = .21$ ,  $p = .036$ . On further examination, when considering only the data for perpetrator absent parades this significant association remained  $\chi^2(1, N = 51) = 4.31$ ,  $p = .038$ ; Cramer's  $V = .29$ ,  $p = .038$ , however, the data for perpetrator present parades showed no such association.

## DISCUSSION

The data supported our hypotheses. Participants with ID demonstrated poorer lineup performance compared to those without ID. In particular, on PP lineups those with ID made fewer hits of the perpetrator and more false identifications, and on the PA lineups they made fewer correct rejections of the lineup and more false

identifications. These findings support Ericson and Issacs (2003), who found a deficit in performance on a PA lineup, and Ternes and Yuille (2008), who found a deficit on a PP lineup.

There are a number of factors that could explain why those with ID demonstrated poorer PP and PA lineup performance. One concerns face recognition abilities. Using the Benton Face Recognition Test allowed us to measure 'pure' face recognition performance as opposed to recognition of a crime perpetrator within a photo lineup. As hypothesised, those with ID had poorer face recognition performance than those without ID. This supports previous research such as Danielsson et al. (2006). Furthermore, there was a positive correlation between Benton Face Recognition Performance and lineup accuracy, suggesting that higher Benton Face Recognition Performance scores are associated with accurate lineup performance. Thus, poorer performance on the PP lineups could be due to those with ID having specific difficulties in recognising unfamiliar faces.

However, difficulties with face recognition would not necessarily explain why those with ID demonstrated poorer performance on PA lineups where the correct response would be to reject the lineup. However, a failure to understand the demands of the task (i.e. to say 'none of them' if the witness believes the perpetrator is not present and/or a failure to remember the non-biased lineup instructions informing witnesses that the perpetrator may or may not be present) could explain poorer PA performance. In response to the post lineup questions, those with ID were less likely to understand the purpose of the lineup than those without ID. Furthermore, those with ID were less likely to remember the non-biased lineup instructions correctly compared to those without ID. It might, therefore, be prudent for future researchers to develop and evaluate methods that better explain the nature of a lineup. For example,

the non-biased lineup instructions could be made clearer and more memorable using external representations such as diagrams. Bray et al. (1997) noted that external memory representations (e.g. touching, moving or manipulating a to be remembered object) were particularly beneficial for those with ID as opposed to verbal strategies. Further, in order to perform to their best abilities, individuals with ID may require greater levels of support to help them remember instructions.

Eyewitness identification evidence can be highly persuasive for jurors (Cutler et al., 1988) even when in England judges regularly give the Turnbull judgement (guidelines for judges to give to juries in cases involving disputed identification evidence) to jurors, and even more so when presented by a witness who is absolutely confident in the accuracy of their identification (Wells, Lindsay, & Ferguson, 1979). This does not pose a problem if we can assume that witnesses are successful in monitoring their memories; in fact, there is research evidence which suggests that adults can sometimes do this to a reasonable extent (e.g. Brewer, 2006). However, in the present study, witnesses with ID gave significantly higher self-reports of confidence in the accuracy of their identification than did those without ID. Furthermore, there was no positive correlation between accuracy and confidence for those with ID, whereas a significant positive correlation was found for those without ID. Thus, it appears that participants with ID demonstrated poorer lineup performance, yet were more confident in the accuracy of their responses; in addition, there was no relationship between confidence and accuracy. This suggests that adults with ID lack the metacognitive abilities to assess their own recall accuracy, which could pose challenges for those involved in the Criminal Justice System, for example juries.

Bearing in mind the number of individuals with ID (at least 1% of the population, Harris, 2006) and the fact that they are more vulnerable to becoming crime victims and witnesses (Lin et al., 2009; Smith & Tilney, 2007; Wilson & Brewer, 1992), it is surprising that so little research has been conducted to examine their identification performance. Further research is urgently needed and should include investigation of performance on sequential lineups which are used in many counties including England and Wales, and some states in America. Taking together the findings from the present study and those of Ericson and Issacs (2003) and Ternes and Yuille (2008), it seems that adults with ID are likely to demonstrate poorer lineup performance. Knowing this, future research should focus not only on understanding why this might be the case, but also on what needs to be done to improve their lineup performance. An initial starting point could be to ensure that the purpose of an identification lineup is made clear and that witnesses are reminded that they do not need to identify anyone if they believe the perpetrator not to be present, for example by providing external prompts to reduce the memory load of retaining the specific instructions. Ultimately, we must ensure that those with ID are not further victimised by not being appropriately supported to perform to their maximum potential in the seeking of justice.



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Table 1: Performance on the perpetrator present and perpetrator absent line-ups collapsed across young and old lineups. Data shown in percentages with frequencies in parentheses

	Line-up type				
	Perpetrator present			Perpetrator absent	
	Hit	Foil	Rejection	Foil	Rejection
Intellectual disability	56 (14)	28 (7)	16 (4)	76 (19)	24 (6)
No intellectual disability	88.5 (23)	7.7 (2)	3.8 (1)	50 (13)	50 (13)